



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
WATER

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US Maritime Administration
Office of Environment
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1200 New Jersey Ave SE
Washington, DC 20590

Subject: Cayman Islands Tourism Association's Application to MARAD for Vessel Title
Transfer of the ex-USS Kittiwake to be sunk as an Artificial Reef

Dear Mr. Carter:

Thank you for the opportunity to review and provide comments on the ex-USS Kittiwake (Kittiwake) vessel-to-reef project, the U.S. Maritime Administration's (MARAD) official pilot project for the transfer of a ship to a foreign government, specifically, the Cayman Islands Tourism Association (CITA), for the purposes of creating an artificial reef in waters off the Cayman Islands. The U.S. Environmental Protection Agency (EPA) would support this project if the applicant and/or its contractors complete all of the outstanding efforts explained in CITA's application materials, as well as the actions that EPA presents in Attachment 1 to this letter. Attachment 2 provides additional details explaining the comments in Attachment 1.

EPA's review and comments are premised on the proposed use of the vessel as an artificial reef, the condition of the vessel prior to the applicant having cleaned/prepared the vessel in a manner that complies with relevant environmental protection requirements, assurances that CITA and/or its representatives obtain and comply with all relevant permits/approvals, and that final inspections will be conducted by the Cayman Islands Department of the Environment and the Cayman Islands Shipping Registry, as well as MARAD, EPA, and the U.S. Coast Guard (as required and requested) prior to the vessel's departure from Norfolk, Virginia, to the Cayman Islands. Please be aware that EPA's support for this project, even if the applicant or its contractor completes the activities in the application as well as the Attachments, does not and cannot waive the Agency's responsibilities or discretion in the enforcement of any violations of the environmental laws administered by EPA.

EPA understands, and is encouraged that, the various permits and approvals will not be available for the reefing of the Kittiwake until the Cayman Islands Department of the Environment is satisfied that the final inspections ensure that no hazardous materials or debris remain on the vessel, that hull cleaning has been completed, and that no perceptible environmental hazards to the Cayman Islands marine environment remain.

According to the application information, all vessel cleanup/remediation activities to the 251 ft. Submarine Rescue Vessel ASR-13 will occur in the United States. Only final diver safety cut outs and sinking will be conducted in the Cayman Islands. Further, the application indicates that vessel cleanup will meet the standards and requirements of the Cayman Islands Department of the Environment which include preparing the Kittiwake to meet the joint EPA/MARAD guidance document, *National Guidance: Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs (BMP Guidance)*, May, 2006 (71 FR 27716). CITA's application included the draft *BMP Guidance* as an appendix; however the draft version has been revised and a final guidance document has been released. Therefore, preparation and cleanup/remediation of the vessel according to the final, rather than the draft, *BMP Guidance* is critical to EPA's support for this project.

With regard to the Kittiwake's polychlorinated biphenyls (PCB) remediation, under the Toxic Substances Control Act (TSCA) section 6(e), EPA prohibits the export of any PCBs without an exemption (40 CFR §761.97). Accordingly, it will be necessary for all PCBs at concentrations of ≥ 50 ppm, or spilled from sources ≥ 50 ppm, to be removed from the vessel before it can be exported; otherwise the exporter must petition EPA under TSCA §6(e)(3)(B) for an exemption, and EPA must grant that exemption by rule before the vessel can be exported. In past discussions with MARAD, EPA has understood that the removal of all non-liquid PCB material from a vessel is highly problematic, particularly with regard to maintaining vessel seaworthiness. In order to ensure compliance with this regulation, MARAD, CITA and its contractor Dominion Marine Group (DMG) should remove all untested materials suspected of containing PCBs, including liquids and non-liquids. EPA's National Program Chemicals Division is willing to meet with MARAD, CITA and DMG to provide technical support on any aspects of PCB remediation.

One other matter regarding PCBs: CITA's correspondence to MARAD (May 18, 2005) states that the approach to address PCBs exceeds that of the *BMP Guidance* and that "we have a rigorous plan, with a zero PCB requirement, as no PCBs can be imported into the Cayman Islands per our environmental requirements." Because the Cayman Islands' PCB requirement might prohibit the import of any PCBs regardless of concentration, that requirement would generally be more stringent than the current U.S. regulations at 40 CFR §761.97(a). EPA would focus on achievement of this U.S. federal standard, rather than the Cayman Islands standard.

EPA intends to conduct at least two (2) vessel walkthroughs relating to the *BMP Guidance* cleanup goals – one prior to cleanup/remediation activities and one prior to the vessel's departure from Norfolk, Virginia, to the Cayman Islands. In order to verify vessel cleanup/remediation, EPA would request thorough documentation as to how the *BMP* cleanup goals were achieved. This initial walkthrough also should help facilitate final review of documentation supporting completed cleanup/remediation and expedite the final walkthrough of the vessel once cleanup/remediation efforts are completed.

Should you have any questions or need further assistance, please contact Laura S. Johnson, Artificial Reefs Team Lead, at 202-566-1273. For PCB issues, please contact Lynn Vendinello, Chief, Fibers and Organics Branch, National Program Chemicals Division, at 202-566-0514.

Sincerely,

Dave Redford
Chief, Marine Pollution Control Branch

Attachment

cc: Paul Cough
Craig Vogt
Maria Doa
Lynn Vendinello
Bill Muir
Laura S. Johnson
Curt Michanczyk
Kristine Gilson

Zoe Goss

**Attachment 1. Terms and Conditions for EPA Concurrence of the ex-USS Kittiwake
Vessel-to-Reef Project**

EPA supports this pilot project for the transfer of a MARAD ship to a foreign government for the purposes of creating an artificial reef if the following actions are completed and the appropriate documentation is sent to EPA for review and approval (as relevant) prior to the ex-USS Kittiwake's (Kittiwake) departure from the United States to the Cayman Islands:

- Documentation of how the completed vessel preparation/cleanup achieved each cleanup performance goal in the final May, 2006 *BMP Guidance* document. This documentation should be accompanied by certification that the vessel was inspected by a qualified professional who can verify compliance with CITA's vessel preparation plan and achievement of the May, 2006 *BMP Guidance* cleanup performance goals.
 - Remediation/Abatement records provided in CITA's application that are out-dated or expired should be updated.
 - All work conducted under the vessel preparation plan by the primary contractor and all subcontractors needs to comply with all applicable federal laws and regulations related to environmental protection.
 - EPA requests a copy of the results of all inspections conducted by the Cayman Islands Department of the Environment and the Cayman Islands Shipping Registry during the various vessel cleanup phases, at least as they relate to vessel cleanup. Please send the requested information to Laura S. Johnson, EPA Artificial Reef Team Lead, Office of Water, at the following address:
Laura S. Johnson
U.S. EPA, Office of Water
EPA West -- Room 7115M
1301 Constitution Avenue, N.W.
Washington, D.C. 20004
- The applicant or its contractor obtains and complies with all applicable Cayman Islands permits and approvals required to sink the vessel in the Cayman Islands, including but not limited to: the Coastal Works permit; approval from the port of authority of the Cayman Islands; and a permit to sink a vessel. EPA recommends that CITA consider a contingency plan that identifies alternative disposal options for the Kittiwake (e.g. domestic scrapping in the United States) if any of the above-mentioned permits are denied.
- EPA recommends that CITA work closely with the Commonwealth of Virginia to ensure that hull cleaning is done in accordance with all applicable State requirements.
 - CITA documents state that prior to the Kittiwake departing for Cayman Islands, the hull will be cleaned in order to remove marine species foreign to Cayman waters, and all tanks will be cleaned to prevent the import of any invasive species to the Caymans.
- CITA/DMG and MARAD satisfy the PCB export requirements in TSCA and its regulations at 40 CFR Part 761, with particular emphasis on the prohibition on the export of PCBs without an exemption (§761.97).
 - Submit all of the information that EPA has identified in this attachment and Attachment 2 as missing from CITA/DMG's February 2006 paint sampling plan and the analytical

results of the samples collected under the February 2006 sampling plan to Laura S. Johnson, EPA Artificial Reef Team Lead, Office of Water. EPA will review and evaluate the February 2006 sampling plan and the quality of the analytical data generated once the missing information is received.

- Results of paint sample #67 indicate that PCBs greater than or equal to 50 ppm are present. CITA indicated that the original paint sample result will be investigated further. Once the investigation of this sample is complete, send a copy of the results of the investigation including details of anticipated sampling and/or remedial actions to Laura S. Johnson, EPA Artificial Reef Team Lead, Office of Water.
- Upon completion of PCB removal, the Cayman Islands should engage a qualified independent third party inspector with PCB experience to verify that CITA/DMG has complied with its proposed PCB remediation and sampling plans for PCBs. EPA retains its discretion and authority to enforce its regulations as EPA deems appropriate.

Attachment 2. EPA Comments

Cayman Islands Tourism Association's Application to MARAD for Vessel Title Transfer of the
ex-USS Kittiwake to be sunk as an Artificial Reef
March 12, 2006

General Comments

- The export of an ex-vessel containing polychlorinated biphenyls (PCBs) ≥ 50 ppm or contaminated by spills where the concentration of the original PCB source is ≥ 50 ppm is prohibited under the Toxic Substances Control Act (TSCA). In order to export the ex-USS Kittiwake (Kittiwake) to the Cayman Islands for reefing, CITA must comply with the provisions of 40 CFR 761.97 or apply to EPA for an exemption under §(6)(e)(3) of TSCA.
- Compliance with EPA's PCB regulations at 40 CFR 761.97 requires the following:
 - remove and dispose of all manufactured products containing ≥ 50 ppm of PCBs;
 - remove and dispose of all liquids containing ≥ 50 ppm; and
 - remove and dispose of all materials contaminated by spills where the concentration of the original PCB source is ≥ 50 ppm.

In addition to the PCB regulations, the May 2006 version of the *BMP Guidance* recommends that the following material be removed:

- remove all liquid containing < 50 ppm PCBs.

Although CITA/DMG may accomplish vessel remediation to satisfy the U.S. PCB export requirements, the remediation may fall short of the Cayman Islands Department of Environment requirements of no PCBs on the ex-vessel, regardless of concentration. EPA recommends that CITA prepare a contingency plan that identifies alternative disposal options for the Kittiwake (e.g., domestic scrapping in the United States), should the Cayman Islands deny the import of this ex-vessel for reefing.

EPA retains its discretion and authority to enforce its regulations, particularly those related to PCBs, as EPA deems appropriate. Further, EPA retains the right and/or authority to inspect the Kittiwake at any time prior to, during, and after remediation, yet prior to the export of the ex-vessel to the Cayman Islands.

- Prior to the ex-Kittiwake leaving the James River, the contractor should notify the Commonwealth of Virginia. Further, an inspection of the ex-vessel should be conducted prior to its departure from MARAD's James River Reserve Fleet (Ft. Eustis, VA) for Norfolk, VA, to ensure that no leaks will occur during transit. This inspection should include identifying any spills from the ex-Kittiwake that have occurred while located in the James River.
- EPA has seen numerous, conflicting lists describing what items will be removed from the Kittiwake upon completion of all remediation work and which items will remain and be sunk with the ex-vessel. Please provide a single, updated list prior to EPA's initial ex-vessel site visit clearly identifying which items will be removed, as well as which will remain and any cleaning/preparation of those remaining items. This would prove useful during a walkthrough of the Kittiwake prior to cleanup/remediation activities and could help in

determining which items identified as remaining might need to be removed per the recommendations of the May 2006 version of the *BMP Guidance*.

- The application package from CITA explains that the cleanup proposed will follow the Draft *National Guidance: Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs*. On May 8, 2006, EPA published a notice of availability of the ultimate version of guidance in the *Federal Register*. The May 2006 version of *National Guidance: Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs (BMP Guidance)* and supporting documents are now available at <http://www.epa.gov/owow/oceans/habitat/artificialreefs/index.html>. EPA remains unclear regarding why the applicant did not refer to the May 2006 version of the guidance document in the applicant's November 2006 submission of the ex-vessel cleanup plan. According to the proposed phases of vessel cleaning/preparation, there are still opportunities to update the vessel preparation plan to incorporate the cleaning methods and cleanup goals as presented in the May 2006 version of the *BMP Guidance*. There are a number of changes to the document that should be incorporated in the final work plan for the vessel preparation/cleanup of the Kittiwake. Incorporating the detailed comments provided below during the onboard hazards assessment as mentioned on p.5-2 of the Kittiwake Reef Preparation Plan could address the outstanding issues that fell short of the *BMP Guidance*, including the requirements for PCB remediation.
- Some of the changes from the Draft version of the Guidance to the May 2006 version include documentation of the cleanup procedures used and the contaminants that will remain onboard the ex-vessel, more specifically, a description of how the BMP narrative cleanup goals were achieved, and a visual inspection are used to determine whether and how the ex-vessel has been cleaned to the level recommended in the guidance document. According to CITA's application, p.251 states that ship inspections will be conducted and a "cleaning document" will be prepared. EPA requests that CITA share with us the "cleaning document" as it pertains to achieving the BMP cleanup goals, as well as information pertaining to inspections conducted by CITA, DMG, or the Cayman Islands Department of Environment.

Also, EPA intends to conduct an ex-vessel walkthrough of the Kittiwake prior to cleanup/remediation activities. EPA anticipates that a DMG representative (and possibly a representative from CITA) would accompany EPA to provide an opportunity to discuss and resolve any concerns regarding ex-vessel preparation/remediation. This initial walkthrough will help facilitate EPA's final review of documentation supporting completed cleanup/remediation and also expedite EPA's final walkthrough once vessel cleanup/remediation efforts are completed.

- EPA also recommends contacting the U.S. Coast Guard upon completion of the vessel preparation/cleanup. Because the U.S. Coast Guard did inspect the ex-USS Spiegel Grove for hazardous materials and fuels and oil prior to its sinking to be an artificial reef, and given their current participation and interest to do the same for the ex-USS Vandenberg vessel-to-reef project, the U.S. Coast Guard may also want to participate similarly with the Kittiwake vessel-to-reef project as well.

Detailed Comments

Oil and Fuel

Tanks

- The Kittiwake application to MARAD includes the April 18, 2001, certificate for the purpose of ascertaining by measurement the calculation of the light ship weight of the vessel and the July 7, 1997, correspondence from PetroChem Recovery Services, Inc. stating that all bilges, engine and equipment sump fuel lines were cleaned and free of petroleum products. Although access covers to fuel and lube oil tanks were resealed with original gaskets, covers, and nuts after the work was completed and marine chemist certificates were issued, it might be possible that over the last 10 years some liquid accumulated in these tanks as the vessel hull aged. Deteriorating and leaking hulls are not uncommon for vessels that have been anchored for decades at the reserve fleets. Some vessel hulls have required hull repairs, including hull reinforcement prior to departing the reserve fleets. For this reason, we encourage another visual inspection for the presence of liquids in the above-mentioned tanks. It is also possible that the original gaskets used to seal these tanks may contain regulated levels of PCBs (≥ 50 ppm).
- According to the Kittiwake final tank soundings (dated April 18, 2001), there are diesel oil tanks, lube oil tanks, and “fresh water” tanks that still contain liquids. All tanks should be cleaned of all liquids, and all lines and piping should be flushed. Such cleaning should be certified with appropriate documentation from a marine chemist. This includes any tanks designated for holding ballast water. The cleaning should also include steam washing any machinery or area where oil products may produce a sheen.
- Prior to commencing the emptying of tanks or bilges as part of the cleaning process, EPA recommends an external hull survey to ensure that no discharges occur during the cleaning process of these tanks and bilges.
- On p.23 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels,” under the Section “Tank Cleaning,” the letter explains that bilge waters will be flushed as needed to ensure that no foreign waters are being imported to the Cayman Islands. The cleanup and preparation of the ex-vessel should include the bilge areas prior to departure from Norfolk, Virginia and prior to ballast or bilge water intake for ballasting. The bilge areas should be free of visible oils, greases, and sludge; all debris should be removed, particularly any debris contaminated with fuel, oil, or grease. Further, any cleaning fluids used to clean the bilge should be removed from the ex-vessel.

Engines and Equipment

- Engines/equipment identified to remain on the ex-vessel should be cleaned of all petroleum products. If such cleaning is not possible, then the engines/equipment that contain petroleum products should be removed. More specifically, combustion engines and associated manifolds should be thoroughly drained, flushed, and cleaned. Further, the entire fuel/oil system should be drained and flushed. As for non-combustion engines, shafting, gearing, and stern seals, the main gear boxes and associated clutches should be drained of all lubricating oils. Internal gear sprayers, lubricating lines, and other components should be removed or drained.

- On p.22 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels,” under the section “Oil Removal,” the oil removal step in the vessel preparation should also include the removal of all hydraulic fluids and heat transfer fluids, if present.
- Equipment that needs to be kept in working order for the tow and final placement at the sink site should be drained of fluids as soon as the equipment is no longer needed and prior to the ex-vessel sinking.

Asbestos

- According to the Asbestos Survey Form completed on August 28, 1997, a post-stripping asbestos survey was conducted onboard the Kittiwake on August 12, 1997, indicating that possible friable asbestos areas identified had been sealed. It is very likely that over the last 10 years asbestos, both friable and non-friable asbestos-containing materials have deteriorated, asbestos wrapped pipes may have broken, and encapsulated asbestos may have been exposed. Because of this, EPA recommends that an additional assessment of existing asbestos serve as an indicator as to whether such materials should be removed, encapsulated, or left undisturbed.
- On p.24 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels,” under the section “Hazardous material abatement process,” the letter states that all asbestos will be removed but other documents comprising the application only reference the sealing of friable asbestos and do not refer to further asbestos removal. EPA remains unclear regarding what the proposed remediation approach on asbestos actually is.
- During the cleanup operations, asbestos-containing material probably will be moved or disturbed. For this reason, assessing the condition of asbestos to determine if asbestos remediation is necessary should occur during the final phase of vessel preparation, well after other materials of environmental concern have been addressed. For example, friable asbestos may be found between bulkheads; this asbestos may remain in place because the asbestos is contained within the bulkheads. If, however, the bulkheads are drilled, cut, or disturbed, the friable asbestos that is now exposed should be encapsulated or removed, in a manner that is consistent with EPA asbestos regulations under the Clean Air Act.
- Any asbestos that can potentially get dislodged as the ex-vessel sinks should be removed from the ex-vessel. Friable asbestos should be sealed as a precautionary measure to prevent releases of asbestos in high concentrations during the sinking event. The method of sinking is particularly important to the effective management of asbestos onboard ships. EPA recommends that asbestos remediation take into account the location of asbestos-containing materials in relation to the locations of the ex-vessel that will be most vulnerable for a given sinking method. More specifically, if the sinking method includes the use of explosives, asbestos-containing material that may become disturbed during detonation should be removed from the ex-vessel. If the preferred method of sinking is controlled flooding, which seems to be the case for the Kittiwake, asbestos-containing material that may become

disturbed during the flooding – especially near the designated areas to allow flooding – should be removed.

- Although sweeping may occur throughout the cleanup/remediation process, EPA recommends a final vacuum using a HEPA (high efficiency particulate air) filter of exfoliated paint and debris, as well as asbestos fibers, after all of the preparation/cleanup in Virginia is completed.

Polychlorinated Biphenyls (PCBs)

- p.1 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels.” While this is most likely an application template, the template should include a footnote or disclaimer that foreign countries or governments applying for transfer of MARAD or Navy vessels may face difficulties associated with additional legal requirements necessary for obtaining and exporting ex-vessels such as securing an export exemption from the TSCA §6(e)(3) ban on the export of PCBs.
- p.1-1 of the “Kittiwake Reef Preparation Plan.” The third paragraph, last sentence states that “Since the PCB remediation plan for the Kittiwake will remove all PCBs, it is anticipated that an EPA RCRA required hazardous waste export permit would not be required.” This statement is not correct; the reference should be to an export exemption under TSCA §6(e)(3), not RCRA. For this reason, the sentence should read “Since the PCB remediation plan for the Kittiwake will remove all PCBs, it is anticipated that an export exemption under §6(e)(3) of the Toxic Substance Control Act would not be required.”
- Various documents that comprise the application refer to the PCB sampling document entitled “Sampling Ships for PCBs Regulated for Disposal (Interim Final Policy, November 30, 1995).” EPA does not believe that the referenced 1995 guidance provides acceptable recommendations for a PCB sampling plan for ex-vessels to be reefed. The sampling plan in the 1995 document was developed as part of an enforcement agreement between EPA and MARAD for domestic scrapping (i.e., not for creating artificial reefs) but the 1995 document was never used. The document was designed to assist domestic scrappers to locate materials containing regulated levels of PCBs and requires fewer samples than would be necessary to assume that the ship does not contain regulated levels of PCBs (≥ 50 ppm). The 1995 plan is based on the premise that EPA knew what the final disposal options for both regulated and non-regulated materials would be, i.e., that final disposal would be controlled. EPA does not believe that sinking a ship as an artificial reef would represent a “controlled” disposal action.

The referenced 1995 sampling plan relies on best engineering judgment and was developed without supporting data. It has never been tested, used or verified. There is no data to support or disprove this method. The sampling plan does not guarantee or provide any sort of confidence level that all regulated materials will be found.

- p.54 of Appendix 3a “Paint Sampling Protocol for the Kittiwake – February 2006.” In Section 5 “Methodology,” the document states that DMG will use the standards presented in the EPA “Compliance with Toxic Substance Control Act (TSCA) PCB Disposal Regulations: Sampling and Analyzing Paint on Metal Surfaces of Vessels being Scrapped for Metal

Recovery” as the approach for the comprehensive paint sampling on the Kittiwake. Please see the preceding comment regarding the use of the referenced 1995 sampling guidance.

- p.1-1 of the “Kittiwake Reef Preparation Plan” indicates that there will be “a post-remediation sampling protocol for PCBs” and references the use of the PCB sampling document entitled “Sampling Ships for PCBs Regulated for Disposal (Interim Final Policy, November 30, 1995).” This statement contradicts information presented in the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels,” which states that the PCB sample results/documentation provided in the application was “included to meet MARAD requirements of no post-remediation sampling and only post-remediation inspections.” MARAD’s requirement of no post-remediation sampling should not be interpreted to imply EPA agreement or compliance with the PCB regulations, especially 40 CFR 761.97. EPA retains its discretion and authority to enforce its PCB regulations as EPA deems appropriate. If post-remediation sampling will take place, documentation should explain when the sampling will take place, which materials/items will be sampled, and include details on how the samples will be collected, handled, and analyzed. EPA does not believe that the referenced 1995 guidance represents an acceptable post-remediation PCB sampling plan for ex-vessels to be reefed.
- p.13 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Navy Vessels” states that the cleanup of the Kittiwake will include the removal of all materials that could potentially contain PCBs. According to this approach, the removal of such material is not dependent on the concentration of PCBs in an item, but rather that the material could potentially contain PCBs. Although the application does provide an inventory of such materials that may contain PCBs as well as provide some PCB sampling results, the list of PCB items to be removed does not include all relevant materials. As provided in both versions of the *BMP Guidance* Documents (and as indicated in the cleanup plan provided by DMG), there are some additional items/materials not listed in this application that may warrant removal due to their potential to contain PCBs -- such as equipment containing capacitors.
- p.2-84 of Appendix E “DMG Shipyard Health and Safety Plan” states that all gaskets, electrical cable, transformers, capacitors, circuit breakers and all other potential media that test positive for PCB contamination greater than 50 ppm will be removed by trained personnel. Although p. 2-82 section 2.10.3 “Methods for Determining the Presence of PCBs” details the standard procedures for identifying PCBs on a vessel, indicating which items are presumed to contain greater than 50 ppm of PCBs and will be removed from the vessel, there are some items mentioned on p.2-82 as items that could potentially contain PCBs and there is not an approach as to how these items will be addressed. These items include adhesives, tapes, plastics, pipe hangers, rubber isolation mounts, foundation mounts, and surface contamination of machinery and other solid surfaces. Further, according to the list under section 2.10.3, it seems that some items listed in Appendix 4 pp.188-189 may need to be removed or cleaned of regulated PCBs if those items are to remain on and be sunk with the ex-vessel. For this reason, these two documents provide conflicting lists of items, materials, and wastes to be removed and EPA requests an updated, exact list of material, items, and wastes to be removed and a list of items and materials to remain onboard. CITA/DMG should also discuss how it will ensure that the items and materials to remain

onboard or removed for static display will have any possible hazardous components removed (fluids, capacitors, thermometers, etc.).

- p.2-84 of the Appendix E “DMG Shipyard Health and Safety Plan” states all media that “test positive for PCB contamination greater than 50 ppm will be removed by trained personnel.” This statement does not accurately identify the correct standard; it should read “...greater than or equal to 50ppm...” The export of PCBs or PCB Items containing ≥ 50 ppm PCBs, or contaminated by spills where the concentration of the original PCB source is ≥ 50 ppm, for disposal is prohibited by TSCA and the provisions at 40 CFR 761.97. PCBs or PCB Items ≥ 50 ppm must be removed from the vessel and properly disposed in the United States. If PCBs ≥ 50 ppm are to be left on the vessel for whatever reason, CITA/DMG must apply to EPA for an exemption under TSCA §(6)(e)(3).

Further, this approach to PCB removal does not correlate with the Cayman Islands Tourism Association’s correspondence to MARAD (dated May 18, 2005), which states there is a “zero PCB requirement, as no PCBs can be imported into the Cayman Islands per [Cayman Islands] environmental requirements.” EPA’s PCB regulations require the following:

- remove and dispose of all manufactured products containing ≥ 50 ppm of solid PCBs;
- remove and dispose of all liquids containing ≥ 50 ppm; and
- remove and dispose of all materials contaminated by spills where the concentration of the original PCB source is ≥ 50 ppm.

In addition to the PCB regulations, the *BMP Guidance* recommends that the following material be removed:

- remove all liquid containing < 50 ppm PCBs.

- p.13 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels.” Section 1 “Pre-remediation Paint Sampling for PCBs - April 2006 Paint Sampling Plan.” While MARAD may have approved the paint sampling plan, EPA notes that MARAD’s approval of this sampling plan does not imply EPA endorsement of this plan as satisfying the PCB export requirements in TSCA and its regulations at 40 CFR Part 761, in particular §761.97. EPA retains its discretion and authority to enforce its regulations as EPA deems appropriate.
- p.13 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels.” Section 1 “Pre-remediation Paint Sampling for PCBs - April 2006 Paint Sampling Plan.”
Sample #67 Resampling Plan – The information provided in the application regarding sample #67 lacks detail pertaining to the approach used to determine the validity of the result for this sample and lacks detail as to how CITA will proceed once the investigation of this sample is complete. Also missing is a copy of the resampling plan and analytical results. The following information should be included as part of the discussion about this sample and submitted to Laura S. Johnson, EPA Project Lead, Office of Water:
 - Possibility of laboratory error;
 - Re-extraction and re-analysis of original sample;
 - Re-analysis of the original extract;
 - Development of the resampling plan including sampling location selection process;

- Status of the resampling and results confirmation; and
 - A detailed discussion of how DMG and CITA propose to proceed if the results for Sample #67 are confirmed.
- “Appendix 3a – Paint Sampling Protocol for the Kittiwake – February 2006.” The inclusion of the February 2006 version is confusing. EPA suggests deleting the reference to the February 2006 version or distinguishing this version from the April 2006 version.
 - “Appendix 3a – Paint Sampling Protocol for the Kittiwake – February 2006.” CITA’s plan for sampling paint on the Kittiwake fails to provide the level of detail typically found in sampling plans or field standard operating procedures (SOPs). A sampling plan should provide enough detail so that a person unfamiliar with the project and the sampling can read and execute the plan with little to no problems. The sampling plan CITA submitted in its application is based on an outdated EPA guidance document that EPA does not believe is appropriate for artificial reefing and should not be used for that purpose. EPA acknowledges that CITA/DMG has already collected and analyzed 121 paint samples using this plan but EPA has noted significant deficiencies with the analytical data in addition to following an inappropriate sampling guidance document.

The following information is either missing from or deficient in the paint sampling plan CITA provided:

- Process for selecting the number of samples, the sampling locations and for determining sample dimensions and size;
- Process for selecting alternate sampling locations in the event a primary location is determined to be inaccessible;
- Diagram indicating where in the vessel the samples were collected;
- Decontamination process for reusable sampling equipment;
- Waste and trash handling procedures;
- Field QA/QC procedures including collecting duplicate samples, split samples and equipment blanks;
- An analytical method (SW-846 8082) was specified but the sampling plan does not identify an extraction method or an extract cleanup method.

EPA requests that CITA/DMG submit the needed information to Laura S. Johnson, EPA Artificial Reef Team Lead, Office of Water.

- “Appendix 3b – Paint Sampling Results on the Kittiwake – 2006.” A diagram showing where the samples were collected on the ship would complement the chart titled “Summary of Paint Analysis.”
 - These samples were collected using a sampling plan based on an outdated EPA guidance document that EPA does not believe is appropriate for artificial reefing and should not be used. EPA has noted deficiencies in the February 2006 sampling plan. See previous comments on sample quality.
 - Results lack laboratory QA/QC results and information documenting possible laboratory issues such as interferences, dilutions and failed QA/QC, how the results may or may not have been affected and what corrective action was taken, if any.

- There appears to have been no field QA/QC samples collected. Field QA/QC samples would include, but are not limited to, duplicate samples, split samples and equipment and trip blanks.
- As requested above, please provide a document detailing how sample #67 will be handled.
- The application does not list the methods used for extracting the samples and for extract cleanup.

See previous comment discussing the needed improvement to the sample collection plan and submitted data.

- All liquid-filled electrical equipment suspected of containing PCBs or PCB contaminated dielectric fluid should be removed, regardless of PCB concentration. Materials such as lubricating oils and greases used for winches and cargo-handling machinery, hydraulic fluids, heat transfer fluids, and waste oils should be removed from the ex-vessel in accordance with the guidance in the “Oil and Fuel” section of this document. All materials contaminated as the result of spills of liquids containing ≥ 50 ppm PCBs must be removed. If there is no information regarding whether a spill occurred and/or the PCB concentration of any spilled liquid, design and implement a representative sampling plan to verify that there are no PCBs present in the areas surrounding the liquid-filled equipment or systems. If the sampling results indicate presence of PCBs as a result of a spill of liquids containing ≥ 50 ppm PCBs, the spill residue and the materials contaminated by the spill must be removed in an appropriate manner (e.g., remove paint from a contaminated surface such as a metal deck, strip the contaminated area down to bare metal in accordance with 40 CFR 761.79(b)(i)(B)).
- “Appendix 3d – HAZMAT Inventories on the Kittiwake (Various Surveys 1994-1997).” The PCB inventories provided in this Appendix are lacking information on how the samples were collected, handled and analyzed. Until this information can be produced and evaluated, this data should be considered historical and should not be relied upon in determining the presence or absence of PCBs on the Kittiwake.
 - p.152 – PCB Sampling Data – Kittiwake – Liquid PCBs Aboard*
 - The heading on this is incorrect. This data is not for liquid PCBs but for solid or non-liquid PCBs.
 - p.159 – 167 – PCB Sampling Log Sheets*
 - Each of these log sheets specifies a certain number of samples to be collected but does not include information on how these numbers were determined or how the sampling locations were selected. Such information should be included.
- “Appendix 3c – Naval Historian Documentation on the History of the Kittiwake Maintenance Schedule.” The maintenance history only provides information on when the hull was sandblasted and painted. No information is provided related to the painting or repainting of the interior or exterior weather decks. Based on the maintenance history of the Kittiwake, EPA cannot conclude that the paint on the vessel does not contain regulated levels of PCBs. In fact, the results for Sample #67 show that regulated levels of PCBs are present in paint onboard the Kittiwake.
- “Appendix 4 – Diver Reefing Requirements of the Kittiwake”
 - p.189 – General Ship-Wide Reefing Plan*

- The Plan does not confirm that all electrical cable will be removed or specify that it will be removed as part of the vessel's remediation plan. Cabling is known to contain regulated levels of PCBs and should be removed. CITA/DMG's original remediation proposal called for the removal of all electrical cable.

p.189 - 190 – Souvenir Items to be saved for CITA

- Some items listed may contain components such as PCB capacitors, transformers, voltage regulators or contain hydraulic or heat transfer fluids such as depth sounders, fathometers, compressors and radio equipment. If "souvenir" items are going to remain onboard to be sunk with the ex-vessel, it is necessary to ensure that liquids containing PCBs (regardless of concentration) are removed and that equipment or manufactured products containing PCBs ≥ 50 ppm are removed. If CITA/DMG plans to salvage any of these "souvenir" items for static displays, the same approach is necessary to ensure that liquids containing PCBs (regardless of concentration) are removed and that equipment or manufactured products containing PCBs ≥ 50 ppm are removed. As stated in the PCB chapter of the May 2006 version of the *BMP Guidance*, "Where there is reason to suspect that equipment or manufactured products containing solid PCBs may contain PCBs ≥ 50 ppm, either remove the equipment or component from the vessel, or provide proof that the equipment or component is free of PCBs."

- Appendix 3a "Paint Sampling Protocol for the Kittiwake." While PCB-containing materials may be found throughout a ship, several areas on ships have an increased likelihood of containing PCB-bearing materials: areas or rooms subject to high heat or fire situations such as boiler rooms, engine rooms, electrical/radio rooms, weapons storage areas, or areas with hydraulic equipment. Because such equipment or systems are vulnerable to leaks and spills during the lifetime of the vessel, areas surrounding the equipment or systems (e.g., carpet, wood, rubber/plastic mats, paint) are likely contaminated by liquids containing PCBs. For this reason, during vessel cleanup/preparation, attention should be directed to locations on the ship that are known to house equipment and systems that typically contain PCB liquids; this remediation approach should be incorporated in the sampling protocol provided on p.55 (under section 6.11) as well as p.56 (under sections 7.7 and 7.10). All materials contaminated by spills of liquids containing PCBs ≥ 50 ppm must be removed.
- p.5-5 of the "Kittiwake Reef Preparation Plan" Section 5.12 "HM/HW Abatement and Removal" should include PCB disposal requirements in addition to RCRA requirements.
- p.7-2 of the "Kittiwake Reef Preparation Plan," Section 7.2 "Environmental Compliance Record Keeping" should include requirements under 40 CFR Part 761. Please refer to 40 CFR Part 761, in particular §761.61 (Remediation), 761.62 (Bulk Product Waste) and 761.79 (Decontamination). All have PCB recordkeeping and reporting requirements. Also, Subpart K pertains to recordkeeping and reporting. EPA also has an in-depth Q&A that contains a section on Bulk Product Waste on EPA's PCB website at <http://www.epa.gov/opptintr/pcb/pubs/guidance.html>.
- Engines/equipment identified to remain on the ex-vessel should be stripped or decontaminated of PCB containing or contaminated parts/components. If decontamination and/or stripping are not possible, the engines/equipment that contain ≥ 50 ppm PCBs or have been contaminated by spills of PCBs ≥ 50 ppm must be removed.

Paint

Anti-fouling Underwater Hull Coatings

- p.23 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels.” Under the Section “Disposal procedure of oil and other hazardous substances,” TBT is listed as a hazardous material that will be removed. EPA assumes that TBT is identified to indicate that biocides used in anti-foulant paints would be removed. Not all anti-foulant paints, however, contain TBT. Anti-fouling agents also include copper, organotin compounds, and zinc. Also, the hull cleaning to remove any potential foreign marine species entering Cayman waters may expose anti-foulant paints and inadvertently re-activate these biocides. Per the May 2006 version of the *BMP Guidance*, if there is minimal active biocide remaining on the vessel, no preparation to the underwater hull area is necessary. If the anti-fouling system is active, however, then the system should be removed to prevent the release of the anti-foulant system’s harmful biocides. Please refer to the Paint chapter of the *BMP Guidance* for further information.
- EPA recommends that CITA work closely with the Commonwealth of Virginia to ensure that hull cleaning is done in accordance with all applicable State requirements.

Solids/Debris/Floatables

- p.23 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Naval Vessels.” Under the section “Intended stripping such as machinery, structure, electrical components, and hazardous materials in preparation of the vessel for sinking,” the application states that as much equipment, engines, and machinery as possible will be left onboard for diver interest; however a plan for cleanup of such items is not provided. As recommended in the May 2006 version of the *BMP Guidance*, all fuel and oil should be drained, and any components that can not be flushed (e.g., oil filters and strainer elements) should be removed.
- On p.23, the application indicates that all loose furniture will be removed; however Appendix 4 “Diver Reefing Requirements of the Kittiwake” indicates that some furniture will remain. Any remaining furniture should be either fastened to the ex-vessel or removed. It seems that the plan for the vessel preparation also includes leaving a number of items, otherwise detachable, on the ex-vessel even once sunk as a reef. When assessing removal of items from the Kittiwake, all material that is not an integral part of a permanently attached appurtenance and that could become separated from the ex-vessel during sinking should be removed from the ship prior to sinking. As recommended in the *BMP Guidance*, all items that remain on the vessel should always be negatively buoyant. The guidance further states that heavy and/or bulky fitted equipment that was disconnected or otherwise detached from the structure of the vessel for cleaning or inspection can remain in its original compartment subject to issues of diver safety. Otherwise, items remaining on the vessel should be contained in a sealed compartment or structural tank that is below the waterline of the ship and underneath the largest section of the superstructure once both the compartment and the debris have been inspected. The items that would remain on the ex-vessel as indicated in Appendix 4 should be addressed in this manner.

- All items constructed of wood should be removed, as wood will deteriorate over time and likely will become floatable.
- Although sweeping may occur throughout the remediation process, EPA recommends a final vacuum using a HEPA (high efficiency particulate air) filter to remove all dirt, loose scale, trash, exfoliating paint, paint chips, hazardous materials, and other foreign matter after all vessel preparation/cleanup in Virginia is completed.
- All plastic and other materials that may break from the ex-vessel and create a hazard to divers or the marine environment should be removed.
- Appendix 4 “Diver Reefing Requirements of the Kittiwake” has a number of lists indicating which items are to be removed, which will remain on the ex-vessel after reefing, and which will be designated as souvenirs to be saved for CITA. The appendix and the application as a whole lack details, and EPA remains unclear regarding which items will remain with the ex-vessel, how items will be cleaned/prepared if they are to remain on the ex-vessel, and whether such items will be placed on static display versus being sunk with the ex-vessel. More specifically, a number of items on the lists in this appendix could possibly contain PCBs or liquids such as lubricants, oils, hydraulic fluid or heat transfer liquids. There is no mention of draining and cleaning these items or removing them if they cannot be drained and cleaned. EPA also notes that a number of these items could also contain voltage regulators, bushings, capacitors, transformers, or ballasts. These components should be removed and if the components cannot be removed, the entire piece of equipment should be removed.

Other Materials of Environmental Concern

Invasive Species

- p.13 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Navy Vessels.” EPA recommends hull cleaning/ballast water exchange in order to remove any potential of importing any foreign marine species to Cayman waters. There is no description in the application package as to the approach for hull cleaning and there are conflicting descriptions as to ex-vessel de-ballasting. From the information provided, it appears that potable, treated water would be placed in designated tanks to ballast the ex-vessel. Other documents, however, indicate that additional ballast intake would occur once the ex-vessel is underway during the tow from the James River Reserve Fleet to the DMG facilities, and from the DMG facilities to the Cayman Islands. EPA remains unclear regarding how and when the ballast water would be released and/or treated.

Mercury and other harmful contaminants

- Some of the items identified as remaining onboard to be sunk with the ex-vessel include refrigerators, freezers, cold storage units and other temperature regulated equipment that have thermometers or temperature gauges. These thermometers or gauges should be removed as they often contain mercury as a component.
- All fire and smoke alarms/detectors should be removed. They often contain mercury and/or a radioactive component, specifically, americium.

- All liquid filled gauges should be drained or removed.
- The list of hazardous materials did not include items such as mercury or fire fighting compounds.

Site Selection

- Placement of an ex-vessel in a high energy environment (e.g. where there is significant wave, current, or tidal action) or in an environment vulnerable to hurricanes would likely result in more rapid degradation of an ex-vessel structure than if placed at typical reef locations. Also, water depth at a reef site may critically affect an ex-vessel's stability and long-term structural integrity.

According to CITA's application, the ex-vessel will be sunk in approximately 60 feet of water which will allow for 15 feet of clearance from the highest point of the ex-vessel to the surface of the water. Because the Cayman Islands do encounter hurricanes, as well as adverse weather during the winter months, such conditions affect the site (as stated on p.221 of CITA's application). If ships are to be placed in high intensity/energy environments or areas vulnerable to hurricanes, EPA recommends additional vessel preparation measures. For example, non-friable asbestos and intact/undisturbed or sealed friable asbestos deemed acceptable to remain on the ex-vessel if used as reef habitat should be removed to prevent any release of asbestos that may occur when placed in a relatively shallow area that is vulnerable to hurricanes. For the same reason, any negatively buoyant vessel debris and more of the affixed ship components and fixtures should be removed. EPA recommends planning for worst-case storms and hurricanes where movement of the ex-vessel would be detrimental to the ecosystem surrounding the reef site.

- On p.30 of the "Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Navy Vessels," section "b" requests weather information as it affects water movements and coastal energy levels seasonally and cyclically. The information that was provided in response does not include any information pertaining to hurricanes. This type of information is pertinent for determining the reef site. The application package should acknowledge and discuss hurricane patterns or past storm events.
- On p.40, the "Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Navy Vessels" states that the Cayman Islands Department of Environment provided guidelines to the Kittiwake project team regarding impacts on coral reefs. In response, the parameters for sinking the Kittiwake include a requirement that the ex-vessel not be sunk within a 300 foot diameter of existing coral reefs (with variances provided to allow a 100 foot diameter to coral reefs) and a requirement to be sunk in sufficient water depths to minimize major storm movement/relocation or breaking of the Kittiwake. There is a discrepancy, however, between the department of the Environment's Guidelines (at p. 257) and the proposed sink site for the ex-Kittiwake described in the application.

- “Appendix 14 – Cayman Islands Department of the Environment Guidelines, Site Selection, p.257.” The first bullet of this section of the Department’s Guidelines states that wrecks “should be as far from coral as possible with a minimum distance of 500 feet.” The Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Navy Vessels, Part V – Location of Sinking, pages 30 and 34, however, specifically says the ex-vessel will be sunk 100 ft from the nearest coral reefs. EPA recommends that this discrepancy be eliminated.

Dated/Expired Permits and Inspections

- According to the Asbestos Survey Form completed on August 28, 1997, a post-stripping asbestos survey was conducted onboard the Kittiwake on August 12, 1997, indicating that possible friable asbestos areas identified had been sealed. It is very likely that over the last 10 years asbestos, both friable and non-friable asbestos-containing materials may have deteriorated. Because of this, it is recommended that an additional assessment of existing asbestos serve as an indicator as to whether such materials should be removed, encapsulated, or left as undisturbed.
- The De-ratting Exemption Certificate expired in April, 1998. Another inspection should be conducted and this certificate should be updated.
- The application includes the April 18, 2001, certificate for the purpose of ascertaining by measurement the calculation of the light ship weight of the vessel and the July 7, 1997, correspondence from PetroChem Recovery Services, Inc. stating that all bilges, engine and equipment sump fuel lines were cleaned and free of petroleum products. Although access covers to fuel and lube oil tanks were resealed with original gaskets, covers, and nuts after the work was completed and marine chemist certificates were issued, over the last 10 years some liquid is likely to have accumulated in these tanks as the vessel hull ages. Deteriorating and leaking hulls are not uncommon for vessels that have been anchored for decades at the reserve fleets. Some vessel hulls have required hull repairs, including hull reinforcement prior to departing the reserve fleets. For this reason, EPA encourages another visual inspection for the presence of liquids in the above-mentioned tanks.
- “Appendix 3c – Naval Historian Documentation on the History of the Kittiwake Maintenance Schedule.” The maintenance history only provides information on when the hull was sandblasted and painted. No information is provided related to the painting or repainting of the interior or exterior weather decks. Based on the maintenance history of the Kittiwake, EPA cannot conclude that the paint on the vessel does not contain regulated levels of PCBs. In fact, the results for Sample #67 show that regulated levels of PCBs are present in paint onboard the Kittiwake.

Outstanding Cayman Islands Permits and Approvals

- EPA understands that some permits/approvals cannot be granted until the final inspection of the ex-vessel once vessel preparation is completed. Please forward to EPA copies of all permits and approvals prior to the ex-vessel’s departure to Grand Cayman:

- The Coastal Works permit, which can only be issued once all remediation efforts have been completed and the Department of the Environment has inspected and approved the Kittiwake for import to the Cayman Islands.
- Approval from the port of authority of the Cayman Islands, which is an inclusion of granting the Coastal Works permit.
- Permit to sink a vessel, which can be issued when the Coastal Works permit has been approved.

Sinking of the Vessel and Post Sinking Monitoring

- p.222, when discussing the stand-by vessel operations, EPA recommends that such operations include monitoring for any debris and/or sheen as the Kittiwake sinks. This could also be incorporated under the Scope of Work described on p.224.
- p.236, under section 2 “Debris Removal from time to time/On-going protection of the surrounding natural reefs,” the last bullet describes catastrophic disaster plans and the need for an emergency meeting to address the process, timing, and funding of the cleanup requirements should the Kittiwake “end up on shore or on the live coral reefs.” EPA recommends that a preliminary plan be in place prior to the sinking to ensure that a response to such an event would happen in a timely manner, especially given experiences with ex-vessels sunk as reefs off the Cayman Islands coast (the Russian Frigate and the Oro Verde), the potential for hurricanes (Hurricane Ivan in 2004), and the adverse weather that affect the site during the winter months (mid November through the end of April).
- On p.39-40 of the “Letter of Application to the Department of Transportation for Transfer of Obsolete MARAD and Navy Vessels,” in the section captioned “Plan for use, monitoring and managing the ship reef including prevention of diver deaths,” the proposed monitoring for the Kittiwake reef is lacking a chemical monitoring component for potentially hazardous compounds/chemicals that could possibly leach from the ex-vessel. EPA recommends that the proposed monitoring plan for the Kittiwake reef include a chemical monitoring component.
- “Appendix 6 – Guy Harvey Research Institute Monitoring Study.” A post-reefing chemical monitoring component is lacking. EPA recommends that the proposed monitoring plan for the Kittiwake reef include a post-reefing chemical monitoring component.
- “Appendix 10 – Management and Maintenance Program – Kittiwake.” See preceding comment about chemical monitoring.